SPECIAL REPORT: What's Holding Back Distributed Computing? *page 54*

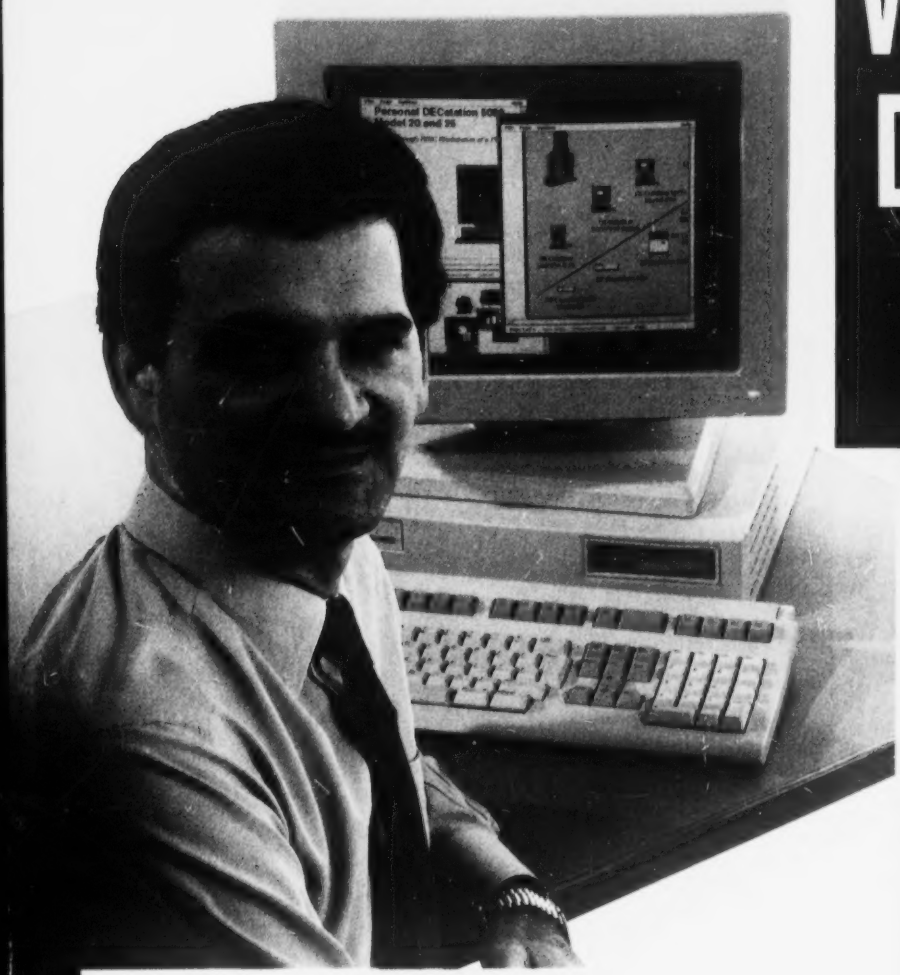
A CAHNERS PUBLICATION

DATAMATION®

FOR CORPORATE COMPUTING PROFESSIONALS WORLDWIDE

APRIL 1, 1992

Domenic LaCava,
VP of UNIX software
and systems group,
Digital Equipment Corp.,
with the Personal DECstation



SPECIAL THREE-PART FEATURE

Workstations: Digital Plays Its ACE

page 28

Workstations: Digital's Competition *page 34*

Workstations: Choosing An ACE OS *page 40*

The OverLAN Route To AS/400s *page 47*

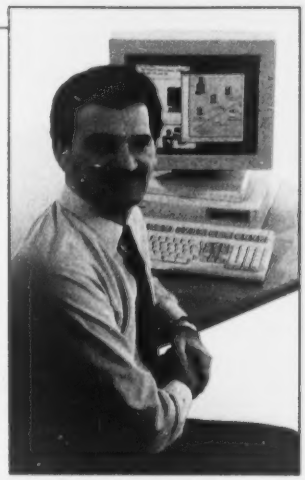
Idiot-Proof Your SQL Queries *page 61*

Bar Codes Break Out *page 71*

BUYER'S GUIDE
FOURTH GENERATION LANGUAGES

xxxxxxxxxxxxxxxxxxxx 3-DIGIT 208
00649806 ( ) 063/ 87 0150
STATISTICAL REFERENCE
CONGRESSIONAL INFO SERVI
4520 EAST WEST HWY
BETHESDA MD 20814

DATAMATION
FOR CORPORATE COMPUTING PROFESSIONALS WORLDWIDE



ON THE COVER: Digital's LaCava is playing the expansion possibilities to the hilt, page 28.

FEATURES

COVER STORY

28 Workstations: Digital Plays Its ACE

They're cheap, ACE compatible and fully upgradable. So why is Digital's gamble that users will flock to the new Personal DEC'stations still no sure bet?

PCs & WORKSTATIONS

34 Workstations: Digital's Competition

This year, it doesn't take a lot of money to buy a lot of workstation.

40 Workstations: Choosing An ACE OS

ACE supports two flavors of UNIX, and Microsoft Windows NT. Which, if any, will dominate?

PRODUCT GUIDE

81 Excel 4.0 Ups Spreadsheet Ante

Excel 4.0 is Microsoft's answer to user requests for an easier to use, more flexible spreadsheet to rival Lotus 1-2-3.

82 AGS Upgrades Project Pack

Project managers who want to distribute computer resources may want to take a look at Wings II/PC, a recently released upgrade of AGS Management Systems Inc.

BUYER'S GUIDE

83 The Portable 4GL?

When it comes to fourth-generation languages, portability is the key—just stick a handle on your tools and go.

Continued on page 5

PRODUCT GUIDE: Microsoft's Levin has raised the spreadsheet stakes, page 81.

CONTENTS

FEATURES

NETWORKS

47 The OverLAN Route To AS/400s

In the next two years, IS managers will have to choose between different LAN options to connect some 4 million PCs to AS/400s.

SPECIAL REPORT

54 What's Holding Back Distributed Computing?

Most vendors are quick to claim they have an architecture that will let you build distributed-computing systems. But *open* distributed computing? That's still on the drawing board.

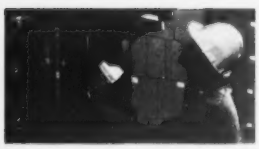
SOFTWARE

61 Idiot-Proof Your SQL Queries

New end-user database query tools give even the most computer-illiterate users an easy way to look into complex corporate databases.

64 Yup—Now OS/2 Runs Windows 3.0 In A Window

IBM's full release version 2.0 of OS/2 seamlessly runs Microsoft's Windows in the multitasking, multithreaded world of the OS/2 desktop.



PERIPHERALS

71 Bar Codes Break Out

Once you learn what bar codes do today, you may find uses you never thought of before.

MIDRANGE/MAINFRAME

75 IBM's AS/400 Grows Up

Mainframe users are looking anew at the AS/400. And for good reason: the application-rich AS/400 now rivals mainframes in performance.

INTERNATIONAL: Special supplement, not included in all issues, page 80-1.

DEPARTMENTS

Inside 9
Letters 12
Look Ahead 17
Media Report 25
New Products 89
Career Opportunities . . . 92
Research 96
Ad Index 99
Future Vision 100

Company Index

Access To Information 75
Acer 40
ADM Consulting 75
Adobe 75
AGS Management Systems 81
AIM USA 71
Andersen Consulting 54, 71
Andrew 47
Apple 40, 54, 81
Applied Expertise 92
AST Research 47
AT&T 61
Audiotechs 61
Banyan 89
Borland 61
BRG 54
Bull HN 54
CA 61, 83
Cabletron 34
CDC 40
Century Software 89
Chorus Systems 40
Cognos 61, 83
Compaq 28, 40, 89
Computer Intelligence 47
Computer Logics 89
Computer Sciences 92
Computer Systems 28
C-Tech Electronics 89
Data Capture Institute 71
Data Composition 71
Data General 54
Dataquest 28
DEC 28, 34, 40, 54, 61, 71, 89
DoD 92
DuPont 54
Dynamics Research 92
Eicon Technology 47
Emulex 89
Epson America 40
Ernst & Young 54
Excalibur Hotel 47
Fletcher Challenge Canada 61
Four Seasons Software 83
Gartner Group 34
GTE Products 47
Gupta 61
HandsOn 47
Harley-Davidson 75
HP 28, 34, 40, 54, 61
Human Designed Systems 89
IBM 28, 34, 40, 47, 54, 64, 75
IDEAssociates 47
Information Builders 83
Ingres 83
Intel 40
Interactive Business Systems 75
Intermec 71
K mart 71
Kennedy and Coe 47
Linksware 89
Lotus 81
Lucid 89
META Group 28
Micro-Integration 47
Microsoft 40, 61, 64, 81
Mips Computer 28, 40
Microsoft 28
Mitsubishi Electronics America 89
Motorola 71
MUST 83
NCR 54
NEC 40, 89
NetFrame 89
NetWorth 89
Next 34, 89
Norick Software 89
Novadyne 89
Novell 61, 47
Octus 89
Olivetti 40
Oracle 61, 83
OSF 40, 54
ParcPlace Systems 89
Paul Morris Personnel 92
Phibro Energy 34
Pioneer Software 61, 89
Popkin 89
Powersoft 89
Progress Software 83
Project Software & Development 89
The Q Solution 71
SAP 34
SEEC 89
SCO 40
Silicon Graphics 28, 34, 40
SNI 40
Software AG 83
Software Publishing 61
Software 2000 75
Sony 40
Spinnaker Software 61
SQL Solutions 61
Storage Dimensions 89
Sumitomo Bank Capital Markets 28
Sun 28, 34, 40, 54
Sunkist Growers 75
Symantec 89
Symbol Technologies 71
System Design Associates 89
Systems Research and Applications 92
Tandem 40
Telxon 71
TI 61
Toshiba 40
Traveling Software 89
Unify 83
Unisys 54, 89
UNIX International 54
UNIX System Laboratories 40
Venture Development 71
Viewpoint Systems 89
Wang 75
Workgroup Technologies 28

How Bad Was IT Last Year?

Like the rest of U.S. manufacturing, information systems producers suffered through a painful year in 1991.

The DATAMATION Information Systems Performance Indicator (ISPI) ended last year at a low 94.84, exactly where it had started in January 1991. Overall shipments of information systems grew by just 1.0% in 1991—the weakest annual gain since the 1986 decline. But even though growth of shipments slowed, purchases of computers by the business sector started to head up more firmly late last year. This slow but steady increase in demand will help push the ISPI past the growth-indicating 100 mark by this summer and boost it to 106 by year's end.

What's more, a rising portion of production over the next two years will head straight out the door instead of into inventory. During 1984, monthly inventory averaged $18.34 billion, a surge of 17% from the year before, and average inventory-to-shipments (I/S) ratios hovered in the 2.5 to 2.7 range (meaning for every item shipped, 2.7 of them were sitting in a warehouse).

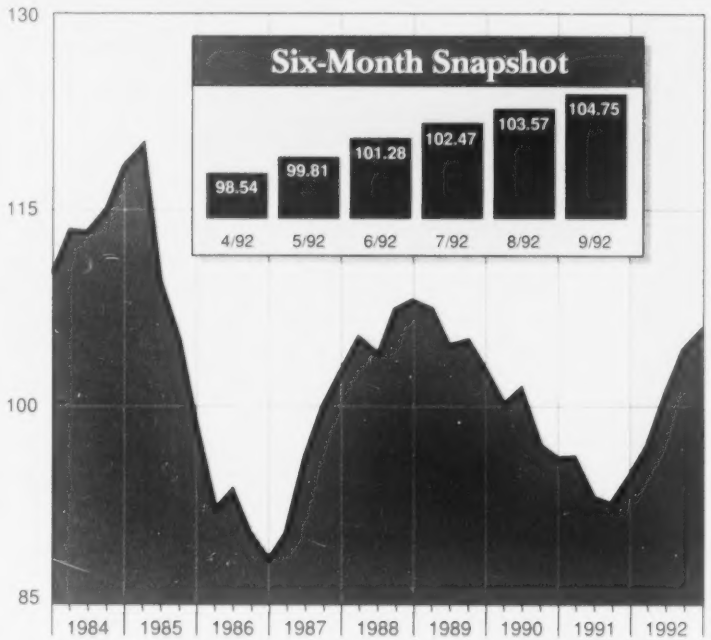
But since those heady days, I/S manufacturers have been slashing inventory levels as a matter of policy. In 1991, monthly information equipment inventory averaged only $15.7 billion, and the I/S ratio stood at 1.58—the lowest ratio ever recorded.

We expect information systems manufacturers, in an effort to keep inventory levels in check, will continue to hold back production growth. However, with output turning more quickly into sales, the industry should find itself in financially healthier shape. ■

By Madeline Franchi, Cahners Economics. For more information on Cahners Economics's forecasting services, including seminars, newsletters and database diskettes, call Dan Buchan at (617)-630-2105, send him a fax at (617)-630-2100 or write to him at Cahners Economics, 275 Washington Street, Newton, MA 02158.

The IS Performance Indicator

The Roller Coaster Continues



*Shaded area denotes forecast

	Dec. 1991	Nov. 1991	% Change 12/91-11/91	Dec. 1990	% Change 1990/1991
■ Information-Processing Equipment					
Shipments (SA, $ billions)	9.57	10.25	-6.6	9.45	1.2
New Orders (SA, $ billions)	9.52	9.52	0.0	10.02	-5.0
Unfilled Orders (SA, $ billions)	25.70	25.75	-0.2	28.91	-11.1
Inventory (SA, $ billions)	15.09	15.37	-1.8	15.86	-4.8
■ Computer Production Workers					
Employment (NSA, thousands)	255.4	256.2	-0.3	274.6	-7.0
Average Weekly Hours (monthly avg.)	42.9	42.1	1.9	43.4	-1.2
■ Stock Index					
S&P's Computer Systems Stock Price Index	161.2	147.8	9.0	180.8	-10.9
■ Contracts & Orders					
New Plant & Equipment (SA, $ billions)	37.9	34.9	8.5	36.5	3.8

SA= seasonally adjusted.
NSA= not seasonally adjusted

Source: U.S. Commerce Dept., Standard & Poor's forecasts, Cahners Economics

Source: Cahners Economics

ADVERTISING SALES OFFICES

Publisher/Vice President
Mike Wisner
Sales Manager
Stephen Twombly
Sales Services
Kelly Mount
Production Supervisor
Laurie Poth
Production Manager
Dian S. Tobin
Advertising Services
Claudia A. Marinelli

EASTERN REGION

MID ATLANTIC
Rick Groves
487 Devon Park Drive
Suite 206
Wayne, PA 19087
(215) 293-1212

NEW ENGLAND, CANADA
Alan Bergstein
199 Wells Avenue
Newton, MA 02159
(617) 964-3730

NYC, NY, CT, LI
Kathy A. Murray Powers
103 Eisenhower Parkway
Roseland, NJ 07068
(201) 228-8617

MIDWEST
John Stellwagen
1350 E. Touhy Avenue
Des Plaines, IL 60018
(708) 390-2967

SOUTHEAST
Peter Nicas
6520 Powers Ferry Road
Suite 395
Atlanta, GA 30339
(404) 955-6500

WESTERN REGION

NORTHERN CALIFORNIA
Tina Ferguson
3031 Tisch Way
Suite 100
San Jose, CA 95128
(408) 243-8838

NORTHWEST
Carole Sacino
3031 Tisch Way
Suite 100
San Jose, CA 95128
(408) 243-8838

SOUTHWEST
Terry Buckley
1904 Church Street
Suite A
Costa Mesa, CA 92627
(714) 722-1242

John Sabo
447 Herondo Street
Suite 305
Hermosa Beach, CA 90254
(310) 379-8455

INTERNATIONAL

CAHNERS PUBLISHING COMPANY
27 Paul Street
London EC2A 4JU
England
Tel: 44 71 628 7030
Telex: 914911 CAHNERS G
Fax: 44 71 628 5984
Managing Director—Europe
Tully Giacomazzi

U.K., SCANDINAVIA, BENELUX
Stuart Smith

FRANCE
Laura Whiteman
Cahners Publishing Ltd.
14 Rue Des Parisiens
92600 Asnieres Sur Seine
France
Tel: 33 1 4790 0507
Fax: 33 1 4790 0643

SPAIN
Carlos Perez
Managing Director
Haymarket S.A.
Arribau 168 170
1 Planta
08036 Barcelona
Tel: 343 238 1742
Fax: 343 237 6688

GERMANY, AUSTRIA
Erhardt Eisenacher
Cahners Publishing Ltd.
Markt 9
D-5300 Bonn
Tel: 49 228 650013
Fax: 49 228 650076

SWITZERLAND
Werner Stahli
Schiebenacker Strasse 14
CH-8245 Feuerthalen
Switzerland
Tel: 41 53 29 2087
Fax: 41 53 29 2034

ISRAEL
Asa Talbar
Talbar Media
PO Box 22917
Tel Aviv 61228
Israel
Tel: 972 332 2716
Fax: 972 22 4 7 403

JAPAN
Kaoru Hara
Dynaco Int'l Inc.
Suite 1003, Sun Palace
Shinjuku
8 12 1 Nishishinjuku
Shinjuku-Ku
Tokyo 160 Japan
Tel: 81 3 3366 8301

TAIWAN
Parson Lee
Acteam Int'l Marketing Corp.
2 floor No. 17, Alley 7
Lane 217, Sec. 3
Chung Hsiao E. Road
PO Box 18-91
Taipei, Taiwan, ROC
Tel: (866) 2 7114833

SINGAPORE
Peter Cheong
Asia Pacific Media House PTE Ltd.
Newline 100 Beach Road
#24-03 Shaw Tower
Singapore 0718

DATAMATION CAREER OPPORTUNITIES

Roberta Renard
National Sales Manager
103 Eisenhower Parkway
Roseland, NJ 07068
(201) 228-8602

Janet O. Penn
Eastern Sales Manager
103 Eisenhower Parkway
Roseland, NJ 07068
(201) 228-8610

Nancy Olbers
Western Sales Manager
238 Highland Street
Portsmouth, NH 03801
(603) 436-7565

Diane Philipbar
Production Assistant
(201) 228-8608
103 Eisenhower Parkway
Roseland, NJ 07068

INFORMATION CARD DECKS

Diane Berger
275 Washington Street
Newton, MA 02158
(617) 558-4355

INSIDE SALES

Judy Benford
275 Washington Street
Newton, MA 02158
(617) 630-3937

ADVERTISERS INDEX

ADVERTISERS IN THIS ISSUE

This index lists advertisers in this issue of DATAMATION

	Page	Circle
AGS Management Systems Inc.	59	24
Ask Computer	52-53	23
Attachmate	C2	1
Bell Atlantic Business Systems	97	41
BMC Software Inc.	16	8
Canon U.S.A.	21	10
Cincom	8, 82	4, 31
Computer Associates	13	7
CTC	12	6
Digital Equipment Corp.	C3, 6-7, 77	—
Empress	46	20
Exide Electronics	22-23	11
Facit AB	80-7	37
Facit, Inc.	79	30
Genicom	70	28
Grafpoint	42	17
IBM Corp.	14-15, 68-69, 86-87	—
IDEAssociates	31-33	14
IMD	80A-B	21
Ingres Corporation	C4	2
Integris	10-11	5
Lanier Copying Systems	74	29
Lannet	88	32
LXE	1	3
MAGIC	80-4	36
McData	65	26
NCR Corp.	38-39	16
NEC	26-27	13
Network Systems	49, 51	38, 22
Nokia Data Systems AB	80-3	35
Nordic Track	91	33
Oracle Corp.	2, 4	—
Overland Data	97	39
Popkin Software	60	25
Prime Factors, Inc.	97	40
Progress Software	67	27
RADLINX	80-2	34
RND	80	42
SAS Institute Inc.	63	—
Sharp Copier	37	15
SQL Solutions	43	18
Sterling Software	19	9
Systems Center	44-45	19
Telxon Corp.	24	12
Recruitment Advertising	**92-95**	**— —**
American Institute for Computer Sciences		
Analysts International Corporation		
Atlanta Group Systems		
Black Data Processing Association		
CAE Link Corporation		
Chemical Abstracts Service		
National Rural Electric Cooperative Association		
Robert Half International		
U.S.A.A.		
Regional Advertiser		
Product/Services Mart		
International Only		

Headquarters: 275 Washington St., Newton, MA 02158, (617) 964-3030, telex 127703, fax (617) 558-4506. **Central:** Two Forest Plaza, 12201 Merit Dr., #730, Dallas, TX 75251, (214) 419-1820. **Western:** 1213 W. Olympic, Los Angeles, CA 90064, (213) 826-0818, 3021 Tech Way, Ste 100, San Jose, CA 95128, (408) 243-8838. **International:** 27 Paul St., London EC2A 4JU, England, 44 71 628 7030, telex 914911, CAHNERS G; DATAMATION (ISSN 0011-6963) PBPUSA GST #123194757. Magazine is issued twice monthly on the 1st and 15th of every month, with additional issues in April, June, September and October by Cahners Publishing Association, L.P., 275 Washington St., Newton, MA 02158. Editorial and advertising offices: 275 Washington St., Newton, MA 02158. Annual subscription rates, U.S. and possessions, $69; Canada, $98; Japan, Australia, New Zealand, $280 air freight; $296 air mail; Europe $147 air freight, $290 air mail. All other nations, $157 surface, $290 air mail. Reduced rate for U.S. public and school libraries, $47. Single copy, $5.00 U.S. **For Foreign Subscribers only:** send all address changes and correspondence to: Datamation, Cahners Publishing Netherlands, Postbus 9000, 2130 DB Hoofddorp, The Netherlands, FAX # # 31 20 6553136, Tel # # 31 20 6531121. Circulation records are maintained at 44 Cook St., Denver, CO 80206, Phone (303) 388-4511. Second class postage paid at Denver, CO 80206 and at additional mailing offices. DATAMATION® copyright 1992 by Cahners Publishing Association, L.P. Reprints of articles are available; contact Andrea Maraviz (708) 635-8800. Microfilm copies of DATAMATION® may be obtained from University Microfilms, 4 Xerox Company, 300 N. Zeeb Rd., Ann Arbor, MI 48106. Printed by Graffex Press Inc. **All inquiries and requests for change of address should be accompanied by mailing label from latest issue of magazine.** Allow two months for change to be made. **POSTMASTER: send address changes to DATAMATION®, PO Box 173377, Denver, CO 80217-3377.**